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DEC 06 2001
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(Modified) PTO/SB/08A-B (10-96)
Approved for use through 10/31/99. OMB 0651-0031

<p>Institute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i></p>		Complete if Known	
		Application Number	09/888,324
		Filing Date	June 22 2001
		First Named Inventor	Juha Punnonen
		Group Art Unit	Unassigned
		Examiner Name	Unassigned
Attorney Docket Number	02-106720US		

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code (if known)		
\$0	AA	5,512,463		Stemmer	04-30-1996
	AB	5,514,588		Varadaraj	05-07-1996
	AC	5,605,793		Stemmer	02-25-1997
	AD	5,763,239		Short et al.	06-09-1998
	AE	5,789,228		Lam et al.	08-04-1998
	AF	5,811,238		Stemmer et al.	09-22-1998
	AG	5,814,473		Warren et al.	09-29-1998
	AH	5,824,469		Horwitz et al.	10-20-1998
	AI	5,830,696		Short	11-03-1998
	AJ	5,830,721		Stemmer et al.	11-03-1998
	AK	5,834,252		Stemmer et al.	11-10-1998
	AL	5,837,458		Minushull et al.	11-17-1998
	AM	5,866,363		Pieczenik	02-02-1999
	AN	5,876,997		Kretz	03-02-1999
	AO	5,925,749		Mathur, et al.	07-20-1999
	AP	5,928,905		Stemmer, et al.	07-27-1999
	AQ	5,939,250		Short, Jay M.	08-17-1999
	AR	5,939,300		Robertson, et al.	08-17-1999
	AS	5,942,430		Robertson, et al.	08-24-1999
	AT	5,948,666		Callen, et al.	09-07-1999
	AU	5,958,672		Short, Jay M.	09-28-1999
	AV	5,958,751		Murphy, et al.	09-28-1999
	AW	5,962,258		Mathur, et al.	10-05-1999
	AX	5,962,283		Warren et al.	10-05-1999
	AY	5,965,408		Short, Jay M.	10-12-1999
	AZ	5,985,646		Murphy, et al.	11-16-1999
TO	BA	6,001,574		Short et al.	12-14-1999
Examiner Signature	<i>Sonia Dispensa</i>			Date Considered	09/17/2004

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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		First Named Inventor	Juha Punnonen
		Group Art Unit	Unassigned
		Examiner Name	Unassigned
Attorney Docket Number	02-106720US		

J.O.	BB	6,004,788		Short	12-21-1999	
	BC	6,030,779		Short	02-29-2000	
	BD	6,054,267		Short	04-25-2000	
	BE	6,057,103		Short	05-02-2000	
	BF	6,096,548		Stemmer	08-01-2000	
	BG	6,117,679		Stemmer	09-12-2000	
	BH	6,132,970		Stemmer	10-17-2000	
	BI	6,165,793		Stemmer	12-26-2000	
	BJ	6,168,919		Short	01-02-2001	
	BK	6,171,820		Short	01-09-2001	
	BL	6,174,673		Short, et al.	01-16-2001	
	BM	6,180,406		Stemmer	01-30-2001	
	BN	6,238,884		Short et al.	05-29-2001	

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Examiner Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T
		Office	Number	Kind Code (if known)				
	BO	WO	97/07205		Novo Nordisk A/S	02-27-1997		
	BP	WO	97/20078		Affymax Technologies	06-05-1997		
	BQ	WO	97/25410		Novo Nordisk A/S	07-17-1997		
	BR	WO	97/35957		Maxygen, Inc.	10-02-1997		
	BS	WO	97/35966		Maxygen, Inc.	10-02-1997		
	BT	WO	97/44361		Recombinant Biocatalysis Inc.	11-27-1997		
	BU	WO	97/48416		Recombinant Biocatalysis, Inc.	12-24-1997		
	BV	WO	97/48717		Recombinant Biocatalysis Inc	12-24-1997		
	BW	WO	97/48794		Recombinant Biocatalysis Inc	12-24-1997		
J.O.	BX	WO	98/00526		Recombinant	01-08-1998		

Examiner Signature	<i>John Dispensini</i>	Date Considered	<i>08/17/2004</i>
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<p>INSTITUTE FOR FORM 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)</p>		Complete if Known			
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		Filing Date	June 22 2001		
		First Named Inventor	Juha Punnonen		
		Group Art Unit	Unassigned		
		Examiner Name	Unassigned		
Attorney Docket Number	02-106720US				

					Biocatalysis Inc		
10.	BY	WO	98/01581		Recombinant Biocatalysis Inc	01-15-1998	
	BZ	WO	98/13485		Maxygen, Inc.	04-02-1998	
	CA	WO	98/13487		Maxygen, Inc.	04-02-1998	
	CB	WO	98/24799		Diversa Corp.	06-11-1998	
	CC	WO	98/27230		Maxygen, Inc.	06-25-1998	
	CD	WO	98/28416		Novo Nordisk A/S	07-02-1998	
	CE	WO	98/31837		Maxygen, Inc.	07-23-1998	
	CF	WO	98/36080		The Dow Chemical Company	08-20-1998	
	CG	WO	98/41622		Novo Nordisk A/S	09-24-1998	
	CH	WO	98/41623		Novo Nordisk A/S	09-24-1998	
	CI	WO	98/41653		Novo Nordisk A/S	09-24-1998	
	CJ	WO	98/42832		California Institute of Technology	10-01-1998	
	CK	WO	98/48034		Diversa Corp.	10-29-1998	
	CL	WO	98/58085		Diversa Corp.	12-23-1998	
	CM	WO	99/07837		Diversa Corp.	02-19-1999	
	CN	WO	99/08539		Diversa Corp.	02-25-1999	
	CO	WO	99/10472		Diversa Corp.	03-04-1999	
	CP	WO	99/10539		Diversa Corp.	03-04-1999	
	CQ	WO	99/19518		Diversa Corp.	04-22-1999	
	CR	EP	0911396A2		Maxygen, Inc.	04-28-1999	
	CS	WO	99/21979		Maxygen, Inc.	05-06-1999	
	CT	EP	0911396A3		Maxygen, Inc.	05-06-1999	
	CU	WO	99/23107		Maxygen, Inc.	05-14-1999	
	CV	WO	99/23236		Diversa Corp.	05-14-1999	
10.	CW	WO	99/29902		California Institute of Technology et al.	06-17-1999	

Examiner Signature	<i>ilia Auspensh</i>	Date Considered	09/17/2004
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Institute for form 1449A-B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			Complete if Known		
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First Named Inventor	Juha Punnonen				
Group Art Unit	Unassigned				
Examiner Name	Unassigned				
Attorney Docket Number	02-106720US				

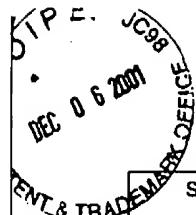
10	CX	EP	0934999A1		Maxygen, Inc.	08-11-1999	
	CY	WO	99/41368		Maxygen, Inc.	08-19-1999	
	CZ	WO	99/41369		Maxygen, Inc.	08-19-1999	
	DA	WO	99/41383		Maxygen, Inc.	08-19-1999	
	DB	WO	99/41402		Maxygen, Inc.	08-19-1999	
	DC	WO	99/45154		Diversa Corp.	09-10-1999	
	DD	WO	99/57128		Maxygen, Inc.	11-11-1999	
	DE	WO	99/65927		Maxygen, Inc.	12-23-1999	
	DF	WO	00/42560		Maxygen, Inc.	07-20-2000	
	DG	WO	00/42561		Maxygen, Inc.	07-20-2000	
	DH	WO	00/53744		Diversa Corporation	09-14-2000	
	DI	WO	00/58517		Diversa Corporation	10-05-2000	

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T
	DJ	Chang, C., et al. (1999) "Evolution of a cytokine using DNA family shuffling." <u>Nature Biotechnology</u> 17:793-797.	
	DK	Christians, F.C. et al., (1999) "Directed evolution of thymidine kinase for AZT phosphorylation using DNA family shuffling." <u>Nature Biotechnology</u> 17:259-264.	
	DL	Coco et al., (2001) "DNA shuffling method for generating highly recombined genes and evolved enzymes" <u>Nature Biotechnology</u> vol. 19 pp. 354-359	
	DM	Crameri et al., (1993) "10(20)-Fold aptamer library amplification without gel purification," <u>Nuc. Acids Res.</u> 21(18):4410.	
	DN	Crameri, A. & Stemmer W.P.C. (1995) "Combinatorial multiple cassette mutagenesis creates all the permutations of mutant and wildtype cassettes." <u>Biotechniques</u> 18:194-195.	
	DO	Crameri, A. et al. (1996) "Improved green fluorescent protein by molecular evolution using DNA shuffling." <u>Nature Biotechnology</u> 14:315-319.	
	DP	Crameri, A. et al. (1996) "Construction and evolution of antibody-phage libraries by DNA shuffling." <u>Nature Medicine</u> 2:100-103.	
10	DQ	Crameri, A. et al., (1997) "Molecular evolution of an arsenate detoxification pathway by DNA shuffling." <u>Nature Biotechnology</u> 15:436-438	

Examiner Signature	<i>ilia Dispensky</i>	Date Considered	09/17/2004
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(use as many sheets as necessary)		Filing Date	June 22 2001
		First Named Inventor	Juha Punnonen
		Group Art Unit	Unassigned
		Examiner Name	Unassigned
		Attorney Docket Number	02-106720US

J.O.	DR	Crameri, A. et al., (1998) "DNA shuffling of a family of genes from diverse species accelerates directed evolution." <i>Nature</i> 391:288-291.	
	DS	Gates, C.M. et al., (1996) "Affinity selective isolation of ligands from peptide libraries through display on a lac repressor 'headpiece dimer'." <i>Journal of Molecular Biology</i> 255:373-386.	
	DT	Minshull, J., Stemmer, W.P.C. (1999) "Protein evolution by molecular breeding." <i>Current Opinion in Chemical Biology</i> 3:284-290.	
	DU	Ness, J. et al., (1999) "DNA shuffling of subgenomic sequences of subtilisin." <i>Nature Biotechnology</i> 17:893-896.	
	DV	Patten, P.A. et al., (1997) "Application of DNA Shuffling to Pharmaceuticals and Vaccines." <i>Current Opinion in Biotechnology</i> 8:724-733.	
	DW	Pelletier, Joelle N., (2001) "A Rachitt for our toolbox" <i>Nature Biotechnology</i> vol. 19, p. 314-315	
	DX	Stemmer, W.P.C. (1994) "DNA Shuffling by random fragmentation and reassembly: In vitro recombination for molecular evolution." <i>PNAS</i> 91:10751	
	DY	Stemmer, W.P.C. (1994) "Rapid evolution of a protein in vitro by DNA shuffling." <i>Nature</i> 370:389-391.	
	DZ	Stemmer, W.P.C. (1995) "The Evolution of Molecular Computation." <i>Science</i> 270:1510	
	EA	Stemmer, W.P.C. (1995) "Searching Sequence Space." <i>Bio/Technology</i> 13:549-553.	
	EB	Stemmer, W.P.C. (1996) "Sexual PCR and Assembly PCR." In: <i>The Encyclopedia of Molecular Biology</i> . VCH Publishers, New York. pp. 447-457.	
	EC	Stemmer, W.P.C. & Soong, N.W. (1999) "Molecular breeding of viruses for targeting and other clinical properties." <i>Tumor Targeting</i> 4:59-62.	
J.O.	ED	Zhang, J. et al., (1997) "Directed evolution of an effective fucosidase from a galactosidase by DNA shuffling and screening." <i>Proceedings of the National Academy of Sciences, USA</i> 94:4504-4509.	

Examiner Signature	Juha Punnonen	Date Considered	09/17/2004
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	09/888,324
(use as many sheets as necessary)		Filing Date	June 22, 2001
		First Named Inventor	Juha Punnonen, et al.
		Group Art Unit	1634
		Examiner Name	Jeffrey Norman Fredman
		Attorney Docket Number	0169.310US

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code (if known)		
J.O.	1	5,718,883		Harlan et al.	02-17-1998
	2	5,738,852		Robinson et al.	04-14-1998
	3	5,858,776		Ostrand-Rosenberg et al.	01-12-1999
	4	5,861,310		Freeman et al.	01-19-1999
	5	6,045,802		Schlom et al.	04-04-2000
	6	6,071,716		Freeman et al.	06-06-2000
	7	6,084,067		Freeman et al.	07-04-2000
	8	6,149,905		Ostrand-Rosenberg et al.	11-21-2000

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Examiner Initials	Cite No.	Foreign Patent Document			Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Office	Number	Kind Code (if known)	
	9	WO	94/24267		Robinson, William S.
	10	WO	95/23859		Brigham & Women's Hospital; Dana-Farber Cancer Institute
					10-27-1994
					09-08-1995

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s).			
	11	Freeman, G.J. et al., "Cloning of B7-2: A CTLA-4 Counter-Receptor That Costimulates Human T Cell Proliferation," <i>Science</i> 262:909-911 (1993)			
	12	He, X-S. et al., "Costimulatory protein B7-1 enhances the cytotoxic T cell response and antibody response to hepatitis B surface antigen," <i>Proc. Natl. Acad. Sci. USA</i> 93:7274-7278 (1996)			
	13	Kim, J.J. et al., "Engineering DNA Vaccines via Co-delivery of Co-Stimulatory Molecule Genes," <i>Vaccine</i> 16(19):1828-1835 (1998)			
	14	Kuchroo, V.K. et al., "B7-1 and B7-2 Costimulatory Molecules Activate Differentially the Th1/Th2 Developmental Pathways: Application to Autoimmune Disease Therapy," <i>Cell</i> 80:707-718 (1995)			
	15	Metzler, W., et al., "Solution Structure of Human CTLA-4 and Delineation of a CD80/CD86 Binding Site Conserved in CD28," <i>Nature Structural Biology</i> 4(7):527-531 (July 1997)			
	16	Parsons, K.R., et al., "Cloning of Cattle CD80," <i>Immunogenetics</i> 49(3):231-234 (1999)			
	17	Rennert, P. et al., "The IgV domain of human B7-2 (CD86) is sufficient to co-stimulate T lymphocytes and induce cytokine secretion," <i>International Immunology</i> 9(6):805-813 (1997)			
J.O.	18	Wu, Y., "CTLA-4-B7 Interaction is Sufficient to Costimulate T Cell Clonal Expansion," <i>J. Exp. Med.</i> 185(7):1327-1335 (1997)			

Examiner Signature	Juha Punnonen	Date Considered	09/17/2004
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	Application Number	09/888,324
	Filing Date	June 22, 2001
	First Named Inventor	Juha Punn n n, t al.
	Group Art Unit	1643
	Examiner Name	John Brusca
Attorney Docket Number	0169.310US	

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		Office	Number				
S.O.	1	WO	99/57271	Texas A & M System	11-11-1999		
J.O.	2	WO	99/43839	Trustees of University of Pennsylvania	09-02-1999		

Examiner Signature: Mr. De Melo Date Considered: 08/17/2006

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